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Designing a sustainable business model for e-governance embedded rural telecentres (EGERT) in India

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Abstract An effective inclusive growth model for rural areas in India will have to be driven by information and communication technology (ICT), and telecentres (places where shared access to ICT and enabled services are available) are the potential instruments of rural information and empowerment. Realising this, the Government of India has under its National e-Governance Plan, committed to the setting up of 250,000 common service centres in rural India. However, the experience with the roll out of this plan has not been encouraging as many of the centres are closing down due to the weak business model.

The first part of this article, the academic perspective, suggests an alternative model for rural telecentres, the e-governance embedded rural telecentres (EGERT), in which e-governance is an important service to be provided, and details the contentious issues clustered round the role of the government; the viability of partnership models with the private and NGO sectors; the institutional design for rural telecentres; the services to be rendered by the centres and the likely markets for them; the location of the centres and support in the form of infrastructure and manpower; and the technology to support the institutional design. Stakeholder representatives from the government, the industry, the NGO sector and the academia discuss these issues in the second part of the article, and make suggestions towards a viable model for service.

Academic perspective

Introduction

Telecentres (places where shared access to information and communication technology (ICT) and IT enabled services are available) are considered a potential instrument for addressing the asymmetric information problem and the digital divide, and therefore as development enablers (Fillip & Foote, 2007). The World Summit on Information Society held in 2003 recognised telecentres as a cost effective way of bringing the information revolution to developing countries, and thus endowed with the potential

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to empower the poor. There are instances of E-Government projects of this nature in some countries that have yielded significant positive gains for the poor (Bhatnagar, 2009). In the current debate on inclusive growth in India this assumes added importance as we are yet to find an effective inclusive growth model for rural areas. The growing concern is that poor people, especially those in rural areas, have benefited very little from rapid economic growth. While the migration of the rural poor to urban areas has helped cater to urban requirements, it has accentuated urban poverty and migration related social problems. Asymmetric information coupled with poor skill sets are considered the root cause of the inability of the rural poor to take advantage of opportunities in the markets created by technology advancement and policy changes. Addressing the problem of asymmetric information is expected to empower the rural poor to take advantage of the market opportunities as well as overcome the skill set deficits in the long run and therefore enhances inclusiveness. This would also contribute to faster and more balanced growth of the economy.

Realising this, the Government of India has under its National e-Governance Plan, committed to setting up 250,000 common service centres (CSC) in rural India. In the roll out plan it is envisaged that Village Level Enterprenuers (VLEs) will provide the front-end interface with people. The experience so far has not been very encouraging. While the plan has been rolled out in many states, the viability of the VLE model is yet to be established and in many places they have been wound up. The initial enthusiasm of the private sector in participating as service providers is dissipating, and the sector has become cautious as the business model for providing the services is perceived as weak. Financial sustainability of such telecentres has been an important impediment all over the world.

Model for e-governance embedded rural telecenters (EGERT)

An alternative model proposed here is e-governance embedded rural telecenters (EGERT). In this model e-governance is an important service to be provided in the centre. Sustainable business models of rural telecentres require high volumes of services to be delivered at low service charges so as to make them affordable to a large number of the rural poor, particularly when cross subsidisation is unlikely to be effective. A high volume of services in a small size population area can come only through provisioning multiple services, which are provided in an integrated fashion and at an affordable cost (Naik, Basavaraj, & Joshi, 2010). Bhatnagar (2009) and Naik, Joshi, and Basavaraj (2010) list a number of services that can be provided in rural India. They include both public and private services in the areas of education, health, agriculture, employment, financial inclusion, entitlement certificates, etc. These services cater to the needs of the citizen, the government as well as business.

Many services important to rural citizens are in the arena of the government. Delivery of government services through telecentres would benefit the government, citizens as well as the telecentres themselves. For telecentres it would mean more services to be provided and therefore more revenue. Many government services such as data collection and recording are also less uncertain and therefore would bring in consistent income and help the telecentres plan their business better. Provisioning certain government services such as health related data gathering would also help in providing many other related public as well as private services. As of now many government departments have difficulty in reaching rural areas due to weak last mile organisational linkage. The government departments in states like Karnataka have not recruited adequate staff for many years now and there is a reluctance to do so due to the perceived inability to get work done properly from such field staff. In addition, the nature of job at the field level has also undergone changes and technology usage has become an important requirement. However, people skilled in technology use prefer to move to urban areas rather than work in rural areas. Therefore it is difficult for government departments to recruit quality manpower and retain them in rural areas. Due to these difficulties, individual government departments are unable to effectively use ICT at the grassroots level. On the other hand there is a proliferation of government programmes to be delivered in rural areas. Absence of adequate staff, inability to recruit quality manpower and increased number of programmes to be delivered have made it difficult for individual departments to deliver the services effectively in rural areas. Proper design and use of telecentres can help overcome this difficulty to a large extent and effectively reach rural people. Therefore e-governance embedded telecentres would be the ideal model to follow in rural telecenters so as to increase the range of services, provide core services required in the rural areas, enable the government to reach the rural citizen effectively as well as bring stability of income to telecentres. The role of the government therefore is to improve the e-readiness with proper back end systems, processes and manpower as well as provide appropriate locations to set up telecentres which are accessible to all. Such locations ideally could be the gram panchayat (GP) premises which people frequent for various reasons. Since government services are likely to have a major share in the services of telecentres, the government can facilitate such centres with proper infrastructure such as space, power and broadband connectivity. The government may use the principle of convergence of policies to support such centres. For example, the funds earmarked for encouragement of renewable energy resources such as solar power can be utilised to provide reliable power supply in these telecenters. Location of telecentres in the premises of the GP would also strengthen its capacity.

Choice of appropriate technology for rural telecentres is an important decision to be made. This also has an implication on the structure of telecentres. Use of extensive mobile technology may make the need for telecentres redundant. However, in Indian conditions, development of cost effective mobile technology suitable to rural areas with required extensive applications will be available only in the long run. Rural people, many being illiterate, need hand holding on several services which can be provided effectively through telecentres. There are also issues related to technology choice with respect to software and

hardware. Laptops are more suitable here than desktops as their power consumption is low and they have battery backup. This helps to address a critical problem of power supply in rural areas. Saving power is an important criterion in the choice of technology. With regard to software, while open source is preferable in the long run, in the short run some proprietary software use may be needed to facilitate easy adoption. Both short and long run cost implications along with the capability to provide services effectively will have to be kept in mind for appropriate choice of technology.

The government can take the help of the private sector to run telecentres through the Public—Private Partnership (PPP) model to meet the challenges of investment, technology and manpower management and effective service delivery. Considering the large number of services that can be effectively provided in such centres, they could be equipped with multiple computers as well as personnel. The private sector would run the telecentre with the revenue that would be generated from the services provided to citizens, the government and business. There has to be perfect clarity on the roles of both the private and the government departments. The government departments have to prepare themselves in terms of backend processes, appropriate systems and more importantly, the mindset to deal effectively with the private sector. The private sector operator needs to have appropriate personnel recruited locally as its employees and provide proper incentive structures. Rigorous training to sensitise the personnel to focus on citizen orientation in service delivery is a pre-requisite to run the telecentres effectively. The viability of the telecentre would depend essentially on how it is able to harness economies of scale and scope. The private sector operator would have contracts with various departments and businesses to provide the needed services. The telecentres act as single points of facilitation for the delivery of various services by the government, business as well as the rural people. Considering the difficulty of doing business in rural areas in terms of infrastructure, quality manpower and logistics, such centres would enormously facilitate the creation of markets for various services in the villages, provided the centres are able to offer quality services. In the long run some of the services may be delivered through mobile technology. While government services can be provided on a full cost basis, other services can be charged on a 'cost plus' basis.

Key issues in creating a sustainable model for telecentres

The EGERT model therefore raises a number of questions about the sustainable design of the telecentres. The key issues are as follows.

1. What should be the set of services provided in telecentres? While delivery of government services through telecentres is required to increase the range of services, provide core services required in the rural areas, enable the government to reach the rural citizen effectively as well as bring stability of income to telecentres, the lack of preparedness of the various relevant government departments is a major bottleneck. This is compounded not only by the lack of adequate knowledge but also the process and legal changes necessary for effective use of ICT.
2. Markets are likely to emerge and develop for many services as the distance of delivery is shortened and access to service delivery points is created (Naik, Joshi, et al., 2010). Service requirements will also snowball as telecentre operators bring in strong citizen orientation. This will help build volume. However, the revenue generation from these services will take time to realise as they have to go through a process of market development. Additionally, for such a snowballing to take place, the quality of service delivery has to be high and a quick business development process has to be in place.
3. The third important issue is institutional design. Given the technology access and knowledge requirement, the quality of service, the efficiency of service as well as the development orientation, PPP is seen as a solution to meet the challenges of running a high tech and high quality telecentre in rural areas. However, there are questions about the appropriate design of PPP that is relevant for operating rural telecentres. A high technology, high quality and low price combination makes service delivery a very challenging task even to the best of the private sector companies, apart from understanding the complexity in the delivery of government services. The clarity of roles of the government department and the private sector is also an important issue.
4. The lack of proper infrastructure is another key issue affecting sustainability. Power and connectivity, even if available, are generally of poor quality in rural areas. Alternatives to the existing infrastructure are expensive and drive the cost up substantially, seriously affecting the business model. New technologies such as solar power, biomass energy and wireless solutions also need to be explored properly.
5. Skilled manpower is another important issue. While several experiments (such as those conducted by Narayana Hrudayalaya, Bangalore) have shown that high technology equipment can be operated by personnel available in rural areas with proper training, the challenge is to source local people who can provide quality service to all sections of people.
6. The location of the rural telecentre is also another important issue. So far the location of the telecentre has been selected by the service providers/VLEs. Many government departments are comfortable only when the services are provided in their premises or in a place where government services are being delivered. This also strengthens the accountability of services provided and creates a perception of equal access to all people. However, this takes away the option for a VLE to operate at a scale that is feasible for her. Moreover, the services that can be delivered have to have the approval of a local government.

The round table discussion that follows discusses these issues to improve our understanding of the design of rural telecentres.

Designing a sustainable business model for e-governance embedded rural telecentres (EGERT) in India: Discussion

Anchor
Gopal Naik
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Rahul De, Professor, Quantitative Methods & Information Systems and Hewlett—Packard Chair Professor, Institute of Management Bangalore. rahul@iimb.ernet.in
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Susheela Venkataraman, Managing Director, Internet Business Solutions Group, Cisco; sushvenk@cisco.com
Faculty and students from IIMB were part of the invited audience, and participated in the discussion.

Gopal Naik

Rural development has been a major challenge for India. While the development indicators very clearly show the gulf between rural areas and urban areas, it has been an enormous challenge to come up with a model which can set right this inequity. The government has earmarked a lot of money for very specific rural development programmes (to name some programmes — the National Rural Employment Guarantee Act (NREGA) with a budget of about Rs 39,000 crores, the National Rural Health Mission; the Rashtriya Krishi Vikas Yojana (RKVY); the Prime Minister's Gram Sadak Yojana and so on; the allocated total on related programmes comes to about Rs 70,000 crores per year), but it is a challenge to devise appropriate models, policies and programmes for rural development. The industry, on its part, in keeping with the bottom of the pyramid concept, is looking for a good revenue model for business to go into rural areas and develop businesses. Is there a cost effective model for delivering services in the rural area which will benefit both the industry as well as the rural people? Models such as the e-Chaupal seem to be doing reasonably well in this area. While information and communication technology (ICT) promises to solve the problems we have in rural areas, we are yet to arrive at a workable model for service delivery. The initial effort of the Government of India, of rolling out one lakh common service centres (CSCs) throughout the country has not been very successful. The states have invited the participation of the private sector in the roll out effort but the results have not been encouraging. At this point some of us started looking at this particular issue through a consortium consisting of the Government of Karnataka, industry partners and also the Indian Institute of Management Bangalore. We have been looking at how best the problem of rolling out common service centres in villages can be addressed, through an appropriate design. Given that this is a topic of interest to the industry, the academia and the government, we have a panel representing the three main stakeholders to discuss the design of an effective common service centre. We look forward to an effective discussion.

Ravi Rangan

Rural telecentres in Karnataka

The Karnataka government's was among the first government initiated telecentre programmes. The focus of the programme was on digitising records and delivering IT enabled services, which led to the centralisation of service delivery. Earlier, where land records were delivered to the village by the village accountant, the delivery process now grew more transparent. However, now citizens would have to come to the taluk office, where the government could set up a computerised system for the delivery of these services, to collect the records. In 2005, entrepreneur-owned kiosks were set up in two districts. However the Karnataka model is completely different from the national model. In Karnataka, the telecentre is company owned and operated unlike the village level entrepreneur (VLE) model in the rest of the country. The positive aspect of this model is that the company has the ability to raise the required equity and sustain the centres, possibly in order to honour its social mandate and the set of enforceable obligations set by the government. However, it is very difficult to make these centres viable. If you keep them small so as to curtail the expenditure, it would also restrict the number of services that can be offered. Making them large would increase the number of deliverable services but revenue need would also go up. The critical thing is to find the balance and we have not been able to hit on the balance in the last five years. However, there are some initiatives in the development sector which if dovetailed into the CSC model could actually help us attain that viability.

Susheela Venkataraman

Technology and service delivery: a radical re-envisioning

I will give you a quick background on where Cisco is today and what our involvement has been with rural development and rural services. (Cisco is a member of the consortium that Prof Naik mentioned in his introduction.) We have undergone a transition from being a product company to one providing solutions, together with our many partners. Our vision is that

we can help the world change the way it lives, works, learns and plays. This has resulted in our rebranding ourselves as a company that is centred around what we call the human network rather than a networking company.

As we went through these transitions, our technologies as well as our modes of delivery started to change. We started looking more at the application and networking of video. We started looking anew at a traditional area of business, telephony, to see how it could become more impactful; for instance if there was an Internet Protocol (IP) network, we wanted to see what more we could build on top of that. At the same time, our customers are becoming more and more global. Industry specific trends are emerging and many of these are common right across the world, in developing as well as developed countries. Video, data and voice are converging and coming together on a common network platform. We are also looking at expanding our geographical markets with a view to becoming more and more relevant to the problems and issues of various countries. We have started looking at the application of key technologies, such as telepresence in specific industries such as healthcare and have developed a whole set of relevant solutions. At the same time, we applied the technology internally to the Global Sales Exchange and Leadership Offsite programmes, where instead of a massive physical congregation in the US, we used telepresence and video and social networking to cut down on travel costs. All of this has resulted in two changes to Cisco. One is the way we are organised. We are no longer an organisation that is driven centrally from the US, as it used to be but a company that is much more collaborative in the way it operates. The second aspect of the change is that we have new solutions in place which has meant new partners, new customers and new ways of working. Very importantly, we recognised that if we are going to be in the markets of the future which are the emerging nations, we have to create solutions that are relevant to those markets. And in a country like India, we cannot ignore our huge rural population. We realised that we need to do research to create meaningful solutions. As one of the first steps in addressing the issue of markets, we now have our Globalisation Centre in Bangalore, which is an extension of our headquarters, in San Jose in the US. In trying to create solutions relevant to Indian health, education and agriculture, we have adapted high quality video to be delivered even on low bandwidth and where there may be fluctuations in power availability.

While ICT can deliver a lot, it is by no means the silver bullet. There is much more that needs to be done to take advantage of the power that ICT provides. Another point I'd like to make is that while the gap between rural and urban populations is growing, rural aspirations are growing too (look, for instance, at the growing number of dish antennas on rural houses!) and the aspiration gap between urban and rural is crunching rapidly. So the solutions we create have to be able to address those aspiration levels as well. We have to deliver the same quality in rural areas that we would deliver elsewhere.

S Kalasad

Rural development and services: a field perspective

In the last 60 years, many state governments have introduced schemes to serve the rural areas and many flagship programmes have been introduced by the Government of India. To take one particular scheme, the NREGA, which assures a livelihood of a minimum of 100 days employment to each household, has seen in the last four years an infusion of rupees one lakh twenty five thousand crores. Huge assets have been created as also huge challenges. The governance structure for rural development is organised in three structures — the zilla parishad, the taluk panchayat and the gram panchayat (GP). Most of these funds go directly to the GP which is at the lowest tier of the pyramid. However, what needs to be looked into is whether GPs are equipped to handle this kind of money. Lack of the requisite education and proper accounting and book keeping are major challenges.

The Government of India envisages rolling out more than 2 lakh 65,000 rural telecentres. In Karnataka, 800 such centres were started initially and they were rolled out in the hobli headquarters (a hobli being a group of three to four villages). Typically, in a district like Tumkur, there would be 25 to 30 hobli headquarters. All the revenue services, such as the issue of birth and death certificates, land registration certificates and kathas, ration cards and other day to day administrative functions were rolled out in the hobli headquarters. What is now being planned is to take this level of service delivery to the GP level so that in a typical district you will have almost 300 such centres instead of just 25 or 30. This would lead to eight or 10 times the penetration levels of the services, cutting of the delivery costs of the services and also probably the pain of accessing these services for the common person. A poor farmer need not trek to the hobli or taluk headquarters to get a copy of his Record of Rights, Tenancy and Crops (RTC) which would mean his foregoing a day's wages. However, we have to examine critically as to whether this is sustainable. We have tried out this model in Tumkur district in Gubbi taluk in four panchayats, for the delivery of revenue services as well as the rural development and Panchayat Raj services.

Among the rural development services that can be part of the package is the NREGA, wherein the registration of the farmers can be done on the spot and payment too can be made there. We also have a panchayat online monitoring system which analyses all the data available at the GP level on the assets created in that particular panchayat. Consumers would be able to avail of the services, which includes details of property and taxation, perhaps at a price, which needs to be worked out. Other services that could be included in the centres would be the Unique Identification (UID) Scheme — Mysore and Tumkur districts have been accepted as the pilot districts for taking up the U ID card holders.

While the role of ICT is very important, we cannot become slaves to it; the governance aspect is more important than the ICT — the man behind the machine is more important than the machine itself. The role of public—private partnership (PPP) will have to be looked into in greater detail. The costing of services to make it acceptable for the rural citizens is what ultimately matters. The system should be sustainable and acceptable. (Rural citizens do not mind spending a few rupees extra provided they are assured of the supply of services round the year.) The major irritants to this scheme and to the centres would be:

the irregular power supply in the rural sectors — solar power may have to be harnessed here seriously; manpower issues — training local people to man the machines; the flexibility of the technology and its rate of obsolescence.

Our plans in the immediate future include taking this scheme further to the level of 15 g panchayats and based on the feedback, probably scaling it up to the entire state. Before that we need to study the earlier lessons the government has learnt so that we do not reinvent the wheel in trying to create more centres.

Rahul De

Rural telecentres: should they exist?

I will first argue about the rationale for telecentres, then speak briefly about some experiences around the world, including the Indian experience and conclude with some very strong opinions!

Fig. 1 features the graph showing the 'digital divide', that is the difference in Internet access throughout the world, and which in a way may be the originary point of our problems. The arguments in the literature on the digital divide are based on Internet access and not mobile access or community radio access. The other point of stress is the Millennium Development Goals, 2008. Goal 8 aims at global partnership, and 8.F specifies making available benefits of new technologies, especially information and communications, in cooperation with the private sector.

Telecentres emerged in Scandinavia in the early 1980s and are called telecottages in Sweden. They consisted of shared computing facilities, since computing equipment was expensive. Telecottages were tried out in a diversity of countries including developed countries like Canada and the US, and also in developing countries around the world. The concept gained a lot of currency around the world in the 1990s. Almost all the effort has resulted from the government or its affiliated agencies being the prime mover and designer of these telecentres. However, research findings revealed that shared computing facilities, whether as a paid model or a free model housed in a library or community centre don't work. Why public telecentres do not succeed is a question that has received much research attention[1]. Answers range from the personal, to the economic. People do not really take to public and shared computing platforms in a big way and this is so even in underdeveloped neighbourhoods or inner cities. Developing countries do not have the spending power to sustain them. There simply aren't enough applications to sustain them. The economics of telecentres is such that pure-play computing economics does not work out, the kiosk has to offer a mixed portfolio of offerings for the customers.

While there has been enormous support for telecentres from both the central and the state governments, the Indian experience is also largely a failure, despite the sincerity of the attempts. Heeks (2002) puts the failure rate at around 80%, and tries to break them up into total failures and partial failures. Many projects such as Gyandoot, Akshaya and TaraHaat failed after the initial hype. Gyandoot for instance started out with 34 telecentres in the Dhar district of Madhya Pradesh, one of the poorest districts in the state; today there are six telecentres operating in Dhar district. Tarahaat won the Stockholm Challenge Award, 2001; both Akshaya and Tarahaat have failed. By and large there is a lot of celebratory writing in the media and the pumping up of failures, but critical research is lacking. There is a lack of understanding of the underlying issues that impact these telecentres or shared computer centres.

My own research[2] reflects many cases where there is conflict and resistance to kiosks. This does not necessarily come from a lack of understanding of the technology but from the shifting of power. People are worried about their power bases going away. Corruption is a distorting influence, as is well known, distorting the awarding of telecentres and their acceptance and usage by citizens. Telecentres centralise the decision making — and I am treating this as a problem. The centralised location of decision-making data may bring in problems of access. Further, caste priorities play a role both in the design and use of telecentres. There is strong evidence that dominant castes are able to capture these and use them for their priorities.

There are several other issues that make the telecentres unworkable. There is not enough of a need or requirement for telecentres; there is no killer app, not enough money to be spent in them, not enough people to spend money on. Shared computing resources could well be enabled through existing centres such as the post office, banks, schools, and so on — there is no need to create these special structures. I think the government should largely stick to providing the basic infrastructure, like broadband access and electricity, and leave the rest to local entrepreneurs to figure out. With the deep penetration of mobile phones, much of the information needs can be met with text or voice over the mobile. I also feel very strongly that for a large section of Indian citizens their first computing device will be the mobile phone and not the computer.

Discussion

Role of Government

Gopal Naik: What should be the role of the government in providing the infrastructure and in running rural telecentres (RTs)?

Rahul De: Referring specifically to the ICT infrastructure, just as we insist upon the government providing us with basic infrastructure such as roads, or amenities such as drinking water, the government has to create the

[1] 'Largely devoid of systematic research and planning' — Roman & Colle, 2002; Large-scale failures — Heeks, 2002; Not sustainable in rural areas beyond initial phase — Wellenius, 2003; 'Not enough people to spend money on… services' — Cisler, 2002.

[2] 'E-Government Systems in Developing Countries: Stakeholders and Conflict', 2005; 'Antecedents of Corruption and the Role of E-Government Systems in Developing Countries', 2007; 'Control, De-politicization and the eState', 2008.

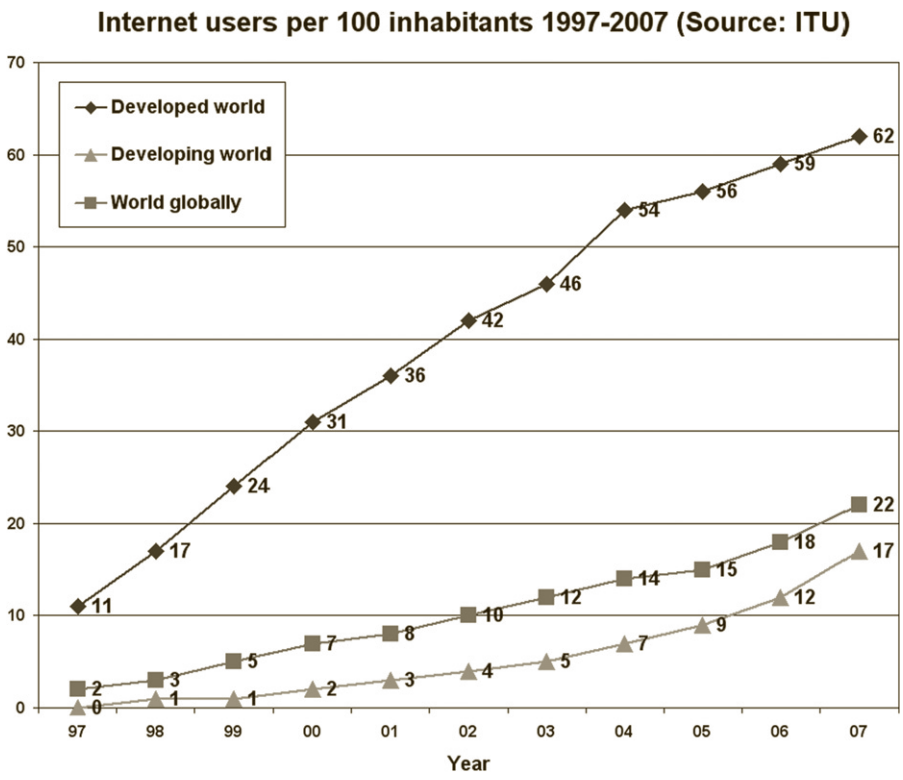

Fig. 1 Rationale for rural telecentres.

infrastructure that enables people to access bandwidth for different purposes. It may be through wireless or through mobile phones. And it should be in the nature of a public good. There is a strong aspirational demand for IT services and innovation will flow from it.

Gopal Naik: There are several challenges in the smooth delivery of services. The lack of a continuous power supply and the long queues at the centres are problems that we have seen; space is also an important aspect in the delivery of services. People need a space from which they can access the various services. How could these challenges be addressed?

Rahul De: Let me address this question of space first. The location of telecentres is the toughest challenge. Location within private premises raises caste issues, certain fractions of the population will simply not access premises belonging to another caste. Location within government premises is prone to corruption issues. Touts, document writers and agents will promptly show up to extract rents and misguide citizens. I do not think we should create those fixed facility centres even in schools or the panchayat office. Even the panchayat office is a charged space unless there is a culture and a history of the panchayat being a shared space. While things do change, space is not an infrastructure that has to be provided.

Many of these devices do need power. Some of these solutions are coming from the green technology movement. People have also found ways around it. For instance, I have a small radio in my office which costs very little, runs on a charged battery and can work wonderfully for several weeks on one charge of 2 h in a week. Such innovations will emerge from the ground. I don't think the government can solve that problem. Further, the power demands will take time to be settled because presently, the urban areas are dominating the requirements, with rural areas coming second.

S Kalasad: The government could act more as the catalyst to provide the infrastructure but I would like to depart from Prof De's view that it should quit after establishing the infrastructure and say that the government should actively involve the stakeholders after creating the infrastructure. For example, the market forces may decide the costing and the pricing, but the government could decide the ceiling limit at which the services could be targeted or marketed. In the case of something like the mobile telephone, the government can create an environment of participation to enable participation at the lowest level and of competitiveness where competing technologies can compete to offer better services. The role of the government is not just to create infrastructure but also create an environment of competitiveness. Government presence is required to initiate the process of devolution of power and getting the services enabled at the lower levels.

Susheela Venkataraman: As we go forward, information technology enabled services will be an integral part of the way any country, any society works. So creating a virtual highway on top of the physical, will be very important. There are private providers who do it, but until the demand picks up and until it becomes much more financially viable, it would make sense for the government to invest in the resources, much as was done for physical infrastructure such as roads and highways. How do you make it viable for private players to offer services? That's the key question because if a private provider is limited by the rates that can be charged, that in itself sets a restriction on how far they

can go. We can look at it in two ways. It could be a target that an innovator works towards, saying — "How do I land the service to the end point for this price point?" on the other hand, we are still in an evolutionary stage, and have not reached a level of maturity with all services. There is still room for experimentation before we arrive at the kind of prices that could be expected.

The government does have the number one role in providing high quality infrastructure and as Mr Kalasad said, it serves the role of the catalyst. Serving as a catalyst. It helps the people in the community to understand the value of what is being provided, to make the mental transition between expecting everything to be delivered by the government to accepting that one has to pay for some of the services, as has happened with water and tolls on roads. If we want to make such initiatives work, ICT is a critical enabler. Devices will evolve over time and services will transition to them. The proposition has to be viable for the private players and at the same time, acceptable and affordable for the people in the rural areas.

There is another aspect of the affordability issue that I would like to table here. We often tend to think of rural areas as much more impoverished than the urban, but if we were to segment the rural populace we would see that a substantial number of people in the rural areas can afford good services or goods and would like to spend money to get them.

Ravi Rangan: My thoughts on the role of the government are mixed with the aspect of sustainability. While I agree with all of Prof De's comments, I have a question on the aspect of infrastructure. In my experience, telecentres have never been looked at as shared computing structures. They have always been a service delivery mechanism. They are not places where people might come and browse the web and so on, so the experience is slightly different. If one were to classify the centres in the interiors where we operate, we would classify taluk centres as A centres, slightly larger locations as B and the smaller ones as C centres. Today A has cyber cafés with people willing to pay Rs. 20—30 per hour for browsing. In B and C centres, while there seems to be a demand, there are no players at this point of time. So it may be worthwhile to try out this model.

Further on the aspect of infrastructure, it is not the IT infrastructure alone that is critical but also the supporting infrastructure (such as banking). You have to look at infrastructure holistically and not just physical or electronic bandwidth. The government has to fully enable or find a way to subsidise this infrastructure in all its different forms.

The government is the largest service provider in the rural areas, the services including banking, insurance and so on. It is very critical that the government enables the backends of these services to make them accessible to everybody efficiently from these centres. Further, I don't think the government is efficient at creating, buying and deploying IT infrastructure. The best thing would be for the government to provide transaction-based support rather than according to a fixed revenue model. So, if a certain service is performed, say, a land record is delivered, the citizen may be charged a fee with the government filling in the subsidy.

Gopal Naik: I have one more question for Rahul De. You spoke about the experience around the world and why telecentres have not succeeded. However the experience of developed countries may be quite different from countries like ours, in terms of vastness of population, accessibility of the Internet and of computers and so on. In our case there is probably more need to have a telecentre like the present model, which is shared. Secondly, we have to take into consideration that technology is constantly changing. While mobile telephony may seem a better option today, we have to consider the range of the instrument; further services like teleeducation and telemedicine or accessing certificates and information, need a place from which they can be accessed. In rural areas, literacy itself may be a problem and they would get the help they require in a telecentre.

Another relevant aspect of telecentres is governance. Despite the extensive budgetary support, the government is finding it difficult to deliver the services because of the lack of trained people at the lower levels. It is difficult even to disseminate information on the various schemes that exist. Therefore if there is a reliable place which can be a point of contact, where information can be displayed, where people can download applications, fill them and send them off, it would be the more feasible option for our country. Of course, the situation will keep changing and what is good for today may not hold good five years down the line.

Audience: Our model of telecentres perhaps cannot be called shared computing as the citizen is not a direct participant in the whole transaction. He/she operates through an intermediary, who enables the citizen to access services from the government. About location, the GP is the most logical one in our rural centres as people visit gram panchayats more frequently than say, the post office. In the US experience, kiosks in libraries have proved to be successful.

Rahul De: There may be isolated examples of success. But on the whole, the shared computing model has not been widely successful. To clarify, by shared computing I mean the sharing of a resource, where people go to kiosks since they do not have a private computer and an Internet line. The international experience with shared computers is applicable to us and the reasons for this have been argued in the literature. Your point about technology change is well taken. The standard argument is that the government should step in where the market fails. On the contrary, in my opinion, in ICT in particular, the government should not step in. The government should create the infrastructure and leave the innovation that is possible on services, service delivery and on computing needs to players. And there will be many players who will step up to the mike. As for delivery of certificates, why can't certificates be delivered on the phone? Let us take the case of Bhoomi, a project that enables the online delivery of land titles in Karnataka. Farmers approach the Bhoomi kiosk or telecentre to obtain their RTCs, which they require mainly for bank loans. Why was this even put in the telecentre? At the bank, the farmer could show his RTC on a phone, pinging for it on a borrowed phone if he doesn't have one. The bank can pay the regular fee of Rs. 15/- for the RTC. Many of these processes are redundant. Many of the certificates are not required by the citizen at all, but by other agencies for official purposes. In an ideal world scenario, agencies should deal directly with each other without involving the citizen. We have a regulatory

environment that is blocking us in many ways. Further, we are locked into certain ways of doing things. We are thinking along the lines of: How do we convert manual applications into digital applications or of computerising the government office? We have to think along the lines of: Do we need those processes? Do we need that government office at all?

Coming to the last point, about informing people about schemes, the mobile as a device has far deeper penetration and far greater potential than the kiosk based model. People have started using mobile devices for giving information on market prices and are building up from here.

Susheela Venkataraman: The mobile is a very critical information device. There are many groups of people, such as rural women, who still do not have access to a mobile. At this point of time it is not an either/or debate — it should involve both. Telecentres are a place where people can physically congregate and carry out transactions; mobiles can act as an additional information layer. We have to see how they can coexist and ensure that telecentres are viable. There are no simple answers to resolve this debate.

Audience: Since we are talking about rolling out advanced technologies in the market, we could even consider automatic kiosks (similar to ATMs) or to deal with different kinds of certificates, consider a solar panel driving an iPad machine with a printer attached. We can work along these lines.

Services provided by rural telecentres

Gopal Naik: What are the kinds of services to be provided in rural telecentres? Do we draw a boundary for the services to be offered by them?

S Kalasad: Taking a cue from Prof De, rural telecentres should not be bound by any specific location. We could even make use of the existing structures such as schools, post offices etc, to act as front ends. The services provided could be flexible and open ended. There could be any number of services which could evolve at a later stage, depending upon requirements. These include food services, the ration card, milk societies, rural banking, election ID cards, the market fair and vegetable vending, to name a few. Dissemination of information is an important service. These services could be multiplied to provide employment opportunities to educated rural youth and telecentres could help rural youth find employment as well. Telecentres could be the centre of money transfer schemes, including the NREGA disbursements. We could arrive at a basket of services which could include transport services, educational services and telemedicine services.

Susheela Venkataraman: Different services have different cycles. They should be driven by the needs of the community and may vary over time, some eventually becoming irrelevant. For instance, the role of the government in many countries is being completely redefined. In many cases, the services required are inter-related. For instance, telemedicine is just one part of healthcare delivery. We have to see that there exists a supply chain that will ensure all the related capabilities such as drugs and lab tests. We cannot address only one aspect of the problem, but expect systemic improvement. Taking a community centric view of what should be delivered is absolutely critical. Key in this is ownership along the entire chain. Supporting processes, chains and people must be in place to ensure effective delivery. The challenge is to be able to identify where the real problems lie.

While I am not in favour of extending the services of telecentres into unrelated areas, there are centre-related issues which are not ICT based alone, and which would involve physical transactions. For instance, if the telecentre provides the procurement prices of food grains, it can very well serve as a procurement point, and you could have a logistics chain at the back which delivers to buyers. Such aggregation makes sense and the cost of logistics gets handled.

When Cisco looked at products and solutions appropriate to emerging markets, what we realised was that it is not a question of picking up a product that is relevant for the developed world and stripping it down. Products or solutions have to be built keeping in mind the requirements of the market. And therefore they have to be re-engineered or re-designed. That is another transition that has to take place and it will, once the market opens up, once the bridge has been provided.

Rahul De: I will answer in reverse and look at the kind of services that you can take away from these centres. Let me give a few examples. The first one is the very popular M-PESA model in Kenya, through which customers could transfer money through mobile phones, through an application installed on the SIM card. (Incidentally it was not a service enabled by the government.) It is a kind of banking in which banks are out of the picture, with SIM card operators and the mobile companies running it. The second example is the use of the Grameen phone in Bangladesh. It is a completely commercial model, where women share phones on a very low transaction cost basis. (The government is not involved.) Next, the example of e-Chaupal, which very clearly is not an ICT based service. It has to do with the supply chain of ITC, where they have been successful in overcoming the traditional lock in that farmers had to the money lender. It is one of the few successful applications of the kiosk model. The entire e-Chaupal model can be run completely on a mobile phone, pinging the centre for prices. For a large number of the services enumerated in Mr Kalasad's list, you don't need kiosks. They were traditionally delivered by the village accountant or some other official, which can now be transferred even to private players if necessary, or post offices and so on. There has to be very significant thinking along these lines of why you need to create parallel infrastructure when there already exists fairly large and dense infrastructure in our country in the form of various organisations, the post office being one. Further, there is simply no need for providing most of these services.

Design of telecentres

Gopal Naik: What would be the appropriate institutional design for telecentres, considering that the government is going to take an active interest in shaping these service centres? How do you involve the private sector? What are the models of public—private partnership (PPP) that would be suitable?

S Kalasad: We need to learn from our early experiences, such as our experience with the Nemmadi kendras to say that it should not be left to one particular individual company or consortium. Let the market forces decide. The government can at best create the infrastructure, decide on a fixed number of basic services which are to be provided by the consortium or the private entrepreneur, and then leave it to the forces of the market. The services beyond the basic ones would depend upon the nature of the demand and local requirements. In a particular village or panchayat there may be several women entrepreneurs and women's self help groups. So the income generating activities there could be vastly different from those in another village. The government will have to intervene in the pricing and settle on a middle path but it should not become unviable for the private entrepreneur. The PPP model would work best. The government can act as a backend provider; it does not necessarily have to be a service provider. It can infuse the initial investment and then withdraw and act as a catalyst. It will be best left to the private entrepreneur to make use of his profitability motives, well known to the public. (The public generally expects services provided by the government or government sponsored schemes to be free.) Further, the competition would keep the private entrepreneur on his toes; he is more likely to give better service if there is a demand and he would increase the number of services. I think the PPP model, with a private player playing a more active role and the government playing a passive role would be a preferable mode of service.

Ravi Rangan: To clarify on the role of the government in the design of the telecentres, we have seen that the participation of gram panchayats in this scheme has been very poor. This is one of the reasons for our not being able to get a mass stakeholder participation in this process. They should have a larger role — we have to find ways to include them. There is a very interesting model we were working within Gulbarga district some years ago where 30 GPs signed up. It was a simple model wherein we were to set up the centre and deliver the services and the panchayats would provide the infrastructure, the power and so on. The centre did not take off for other reasons but we could see that it was a positive thing to get the GPs involved. If we look at the Nemmadi rural telecentre project as being partially successful, the reason for the success is the government's transactions. It has created a foot fall into the system which then can be leveraged to do other things. Today, on an average, 60,000 people avail the services on a daily basis at the Nemmadi centres.

Susheela Venkataraman: The service level agreements in PPPs in the past have been loaded with conditions and penalties. That mentality has to change. While there are issues with service providers, in all fairness, the delivery of services to rural populations is also fraught with issues of lack of awareness, insufficient information, no background or history, lack of clarity and very high levels of expectation. However, the government must of course remain as part of a larger roll out. Another aspect of the design is that centres that offer a large number of services present a challenge for co-ordination and programme management, not just at the backend but on a daily, ongoing basis, and this aspect has been underestimated in the past. Whether the model is a PPP or market driven, we must ensure that there is adequate co-ordination amongst all those who are part of the service chain, including government. When we looked at the public part of the PPP, in many cases we found that the government services, the applications, were not running. They were not accessible, the response time was not good and so on. You cannot have a situation where backend applications do not work efficiently. Problem avoidance is as important as response to a problem. If there is an issue, that is where the role of the government as an underwriter or a buffer comes in. Service providers should see this rural market as being just as important as other markets; large volumes, the opportunity to up sell/cross sell to increase market and wallet share, as well as financial motivation are extremely important. Any PPP agreement should provide for incentives to do better, and provide higher levels of service. We feel very strongly about the need for incentive clauses. That could be the single biggest factor in driving better acceptance of the centre's role. To smoothen relationships in PPPs and avoid problems, there must be frequent open dialogue between partners so that all are benefited. Parties must set realistic expectations of each other, and expectations and requirements need to be fine tuned regularly.

Rahul De: The PPP models seem to work but there is a large amount of evidence that they don't. The running costs of such kiosks are never recovered from the revenues. The private player generally is the loser; the government is too big to lose. The only types of kiosks that survive economically are those funded by large corporations for their own manufacturing and supply chain needs, such as the e-Chaupal.

Gopal Naik: In this discussion on PPP, are we talking about the different stages of processes? With the learning that happens over time, the government should be able to streamline their own system. Is there a process in place to enable that? Can Ravi Rangan comment?

Ravi Rangan: The attitude of the government is moot. The government wants to play safe, always erring on the side of caution. They are worried about whether the initiative itself gets killed. The PPP model would be the appropriate model provided there is a shift in bureaucratic attitude. In the recent past we have been working on an alternate model that has been using local communities and self help groups, and taking local needs into consideration. The participation from the government this time round has been significantly different and there has been a quicker turnaround time in providing buildings, infrastructure and so on.

Location of telecentres

Gopal Naik: Locating telecentres in the gram panchayat has certain advantages. It is a centre which people visit and where they congregate, so it is easy to disseminate information about services and to access them. A location backed up by the government gives it a certain validity — our surveys reveal that the reliability factor is very high with the government, compared to other private structures, cooperatives and so on. However, as Rahul De pointed out, it probably replicates the weaknesses associated with government ventures — such as the presence of agents or middlemen. Is there a way to address this through the design of the rural telecentre?

Rahul De: Gram panchayats have traditionally been controlled by the dominant castes. That begins to create distinctions in access and use. The original design of the technology may not have intended it but we begin to shape the technology to our needs, as we have done with the mobile phone. We cannot walk away from certain issues, which is why I submit that this model be rethought very carefully.

Ravi Rangan: I beg to differ on the caste-based issue in respect to Karnataka. I don't know about other states, but in Karnataka there is no differentiation in the way people of different castes are treated. However in terms of the location vis-à-vis, corruption, our experience is different. It may be as simple as the person at the counter not giving back the change after collecting the fee for issuing a certificate. We find that the centres which are closer to the decision making points, such as taluks, become a hub for touts in that area. Coming to the location of the telecentre at the gram panchayat, in many places there is no other infrastructure available other than the GP office, where people can congregate. Much depends on how effective the social mobilisation at the centre is. If your social mobilisation is effective enough, a big chunk of the local community which has been aggregated into self help groups (SHGs) and farmers' organisations can play a dominant role both in terms of viability and oversight on the services delivered, and the GP is a good point to congregate. Another interesting development is that the GP today, at least in Karnataka, has a computer of its own with an operator. Telecentres could subsume that into their model to create additional viability. Given these considerations, the GP is a good location.

Susheela Venkataraman: While you need a home for the equipment, service delivery need not be restricted by physical boundaries to the GP office or any other location. Once you have the concept, it can be housed anywhere. We could use hand held devices. Coming to the question of access, while equity is important and the eventual goal is to provide 100% coverage of everything to everybody, initially we should be thinking of services and mechanisms that may not be ideal but still deliver good quality services to a substantial chunk of the population.

Ravi Rangan: Till now, financial inclusion has primarily been through a banking model that used a hand held device and operated through a smart card mechanism. There have recently been initiatives from banks, the biggest being SBI, where the bank's core banking system can directly be accessed from kiosks. Till date the models have been such that one had to go through an intermediary middle ware which did not have all the services but only a restricted set. If this kind of model catches on and works well, there is a big advantage to be gained. Its positioning in the GP centre can bring in a huge amount of viability and you will have a large number of banking transactions passing through in a very transparent manner.

Susheela Venkataraman: This would give you the opportunity to up sell or cross sell and you can plan the next steps.

Audience: In the context of agriculture, telecentres can play a crucial role in creating awareness, they work as training centres and hand holding centres. Farmers can be given crop advisories and initial hand holding on the use of mobile would lead them to subscribe directly on their mobiles.

Selection of technology

Gopal Naik: The other question is with respect to selection of technology. Should it be open access or the proprietary product? What is the appropriate connectivity?

Rahul De: I have always been for open source and open technology. Open source technologies go into the public domain. They become a public good which can be shared equally. The technology can be replicated by various states without having to pay royalties to the owners. This is both on the software side and the application side. Even on the hardware side, there is a nascent movement of open designs and open hardware technology platforms which don't have proprietary hooks into them. Several mobile technologies are on open source platform, although the hardware is still proprietary. (If I have a wish list I could give to the government today, I would ask for one thing — half an hour talk time free to all BPL families in the country. This would not cost much and would enable a far larger number of capabilities than we are envisaging today with the kiosk model.) Some things may not be possible but these technologies have a way of enabling innovation which is phenomenal. There have been very interesting experiments in connectivity with devices made of low cost material which allow long distance communication. And once we roll out bandwidth at a massive pace — S-Band, 2G, and 3G — and with private players in the game, connectivity is not going to be such a big issue whether you talk about voice or data. The government can go ahead and build the connectivity and we will do the rest.

Susheela Venkataraman: Connectivity is perhaps not as much an issue as is consistency of bandwidth and the availability of good bandwidth. It should not be an issue as we go forward (one the fibre network is rolled out) but it is something that needs addressed now; if not, we will end up with fragmented solutions which could lead to the whole initiative being dumped — throwing out the baby with the bathwater as it were. Private players too are looking at open technologies and adapting them for their applications. However, until many of the technologies/applications are proven, become scalable and robust enough for you to achieve, you may need to go through a proprietary solutions phase. It is important not to tie down to specific software or hardware option, but provide flexibility to bring in new solutions and ensure interoperability. The relevant technologies will be those that will allow multiple end points, which will allow the applications to take advantage of whatever mechanisms there are that allow people to interact. Power consumption has to be low and the technology should be easy to maintain. The ability to manage remotely, from a central location, is important.

Ease of use is very critical. Ease of use not so much for the person in the kiosk who is trained to deliver but when there is a direct interface with the consumer — there you needs a very simple interface. One flaw in our past thinking has been thinking about the technology first and then the services offered. Technology is integral to service delivery and cannot be viewed in isolation. Going forward, the services on offer are going to drive technology. What is important is good architecture.

Ravi Rangan: Our experience in terms of connectivity has been very good. Over the last four years we have moved

from VSAT, the only option available, to broadband which is universally available at the hobli level and even the GP level. The cost has come down by a factor of four in the last four years and left to market forces, it will keep improving. With regard to the rest of the technology pieces, based on our experience, we would rather have a thin client environment on the telecentre end because that pushes the complex management on to the server end. A cloud application would be ideal because then it is much easier to manage and maintain and the upgradation on the telecentre end would be minimal. Lastly, there is a huge management information system (MIS) backbone that needs to be set up once all the CSCs are rolled out in Karnataka, 5000 individual offices will have to be monitored and managed. So, technology has also to be looked at for the layers in terms of MIS and management systems.

Human resource issues

Gopal Naik: One critical aspect of telecentres is the quality of service and there are many challenges here such as getting the right kind of people to work in rural areas, giving them the right training so that good quality service can be delivered and issues such as ensuring equity in the quality of service and being alive to corruption will be addressed.

Ravi Rangan: The employees of telecentres weigh their job in their context, in their social environment and consider it to be an important, white collar job. Over the last five years the attrition has been less than 5%—6%. People haven't left these centres seeking opportunities in urban areas — they look at it as a socially relevant and important job. You can build on this and motivate people. There has been some debate about whether people should be swapped between telecentres. We have not seen much of a difference here — the net impact seems to be the same. Because over a period of time they become localised to that area. Also people have their own networks across hoblis and gram panchayats. So I think it is irrelevant in this context. The other issue is incentives, on which the jury is still out on how and whether the incentives impact performance. A larger challenge is the employee model vs the VLE model. In the VLE model you have an open-ended system where you can set up your incentives as a kind of all or nothing. Whereas in an employee model, keeping in mind certain sustainability constraints, the amount of incentives that you can afford to give out is not very large. On incentivising people to perform better, we are trying to learn more about the different models that are there. Coming to attitudinal training, it has to be done on an ongoing basis.

Susheela Venkataraman: Amongst HR issues, stability and training are very important, and telecentres would perhaps require a broader set of skills than may be envisaged today. One could use the MIS in the backend, one could use the rich information being generated by building dashboards etc, to monitor service levels closely. Apart from quantitative information it is just as important to look at the qualitative aspect as well, especially when we are trying to put something in place and drive acceptance for it. Video technology today enables organisations to stay in touch with remote individuals, and supports motivation and constant skill upgradation. It is easier to talk to people face to face, coach them and counsel them. But video has to supplement ground supervision. We can explore the use of the social media here because that would allow a lot of collaboration among remote individuals and the exchange of notes on challenges and problems. So there is a tremendous amount you can do just by being able to use technology not for just service delivery but also for organisation building. If there is one soft skill that I had to choose, it would be customer centricity and it is something that can be taught. The other thing is to be able to teach people in the centre to tease out the real problems, the real issues and not just perform mechanically. Communication between the rural and urban worlds can be a real challenge. It would make sense to view this as a consumer driven service with the added complexity of distance and isolation.

Gopal Naik: Thank you all for a very exciting discussion. We have benefited from the experiences of all the panellists.

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